



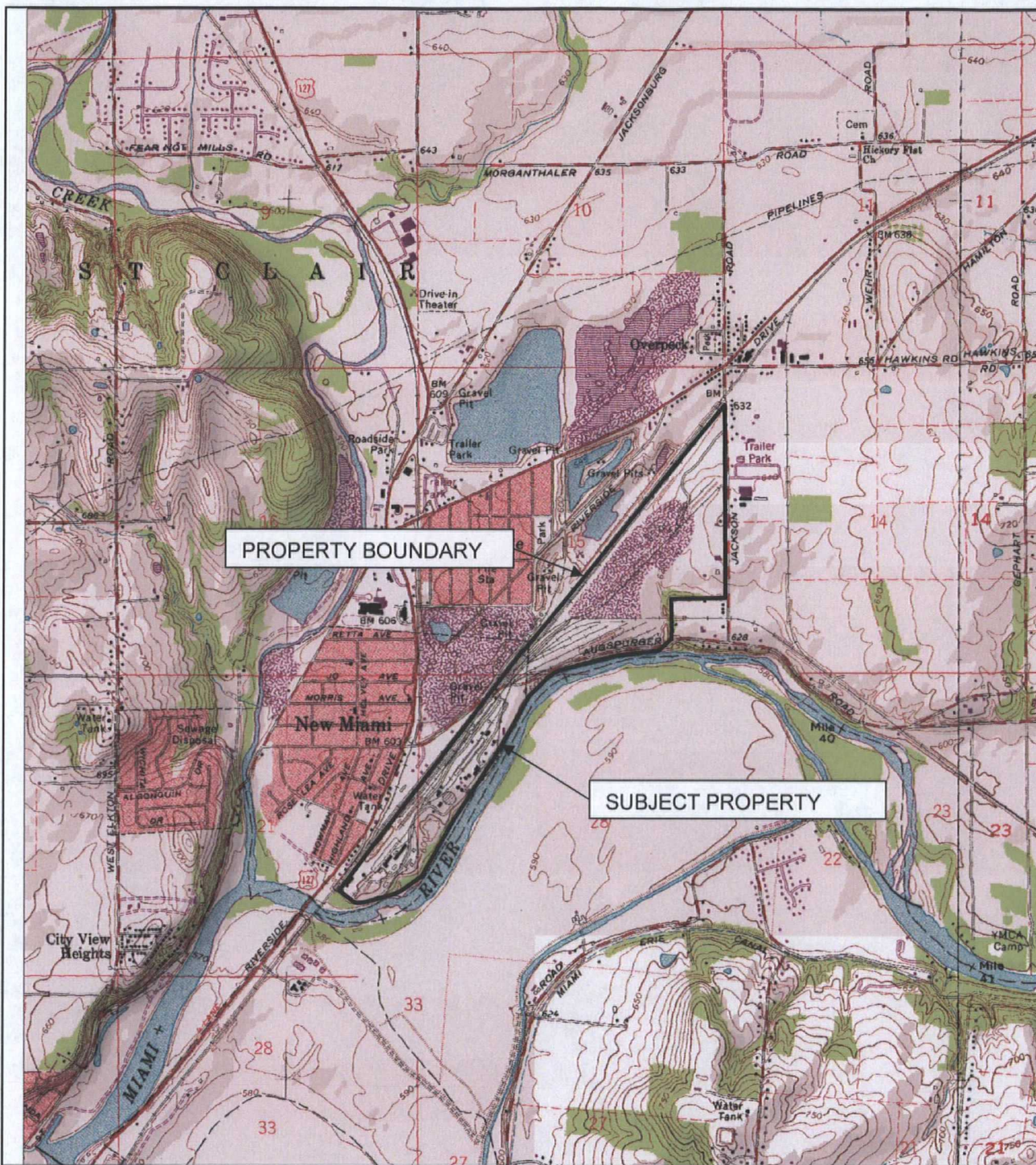
**DRAFT FINAL
REMEDIAL INVESTIGATION REPORT
FOR THE
FORMER ARMCO HAMILTON PLANT SITE
401 Augspurger Road, New Miami, Ohio**



**FIGURES
Figures 1.2.1-1 – 4.0.1-7**

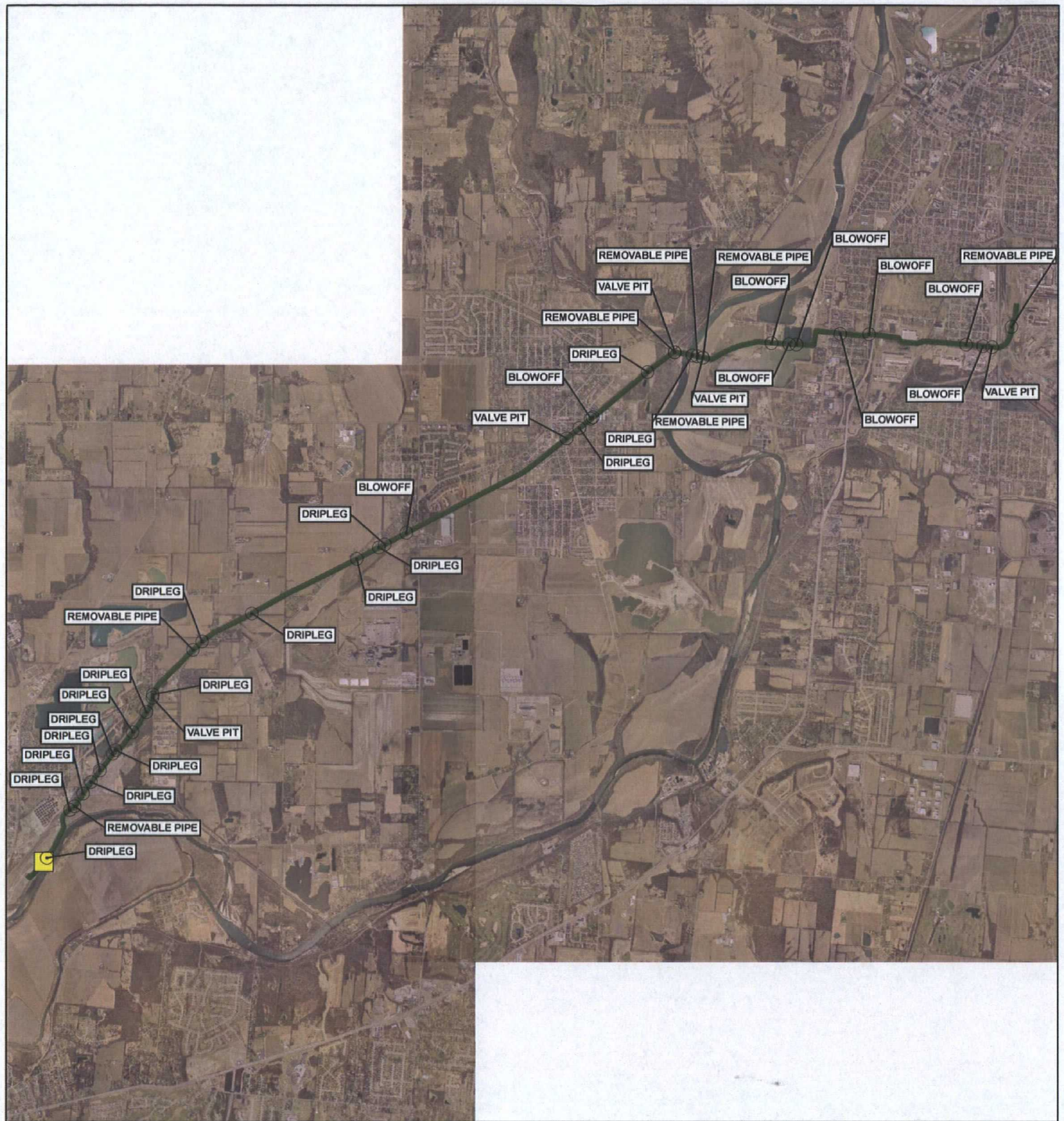
Volume 4 of 10



November 2008



 Scale: 1:25,000	AK Steel Former Armco Hamilton Plant Hamilton, Ohio Quadrangle 1988	<h3>Site Locus Map</h3> <p>Hamilton, Ohio</p> <p>July 2007 Project #: MR0507</p>	<h3>Figure 1.2.1-1</h3> 
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0 2,300 4,600 9,200 13,800 Feet

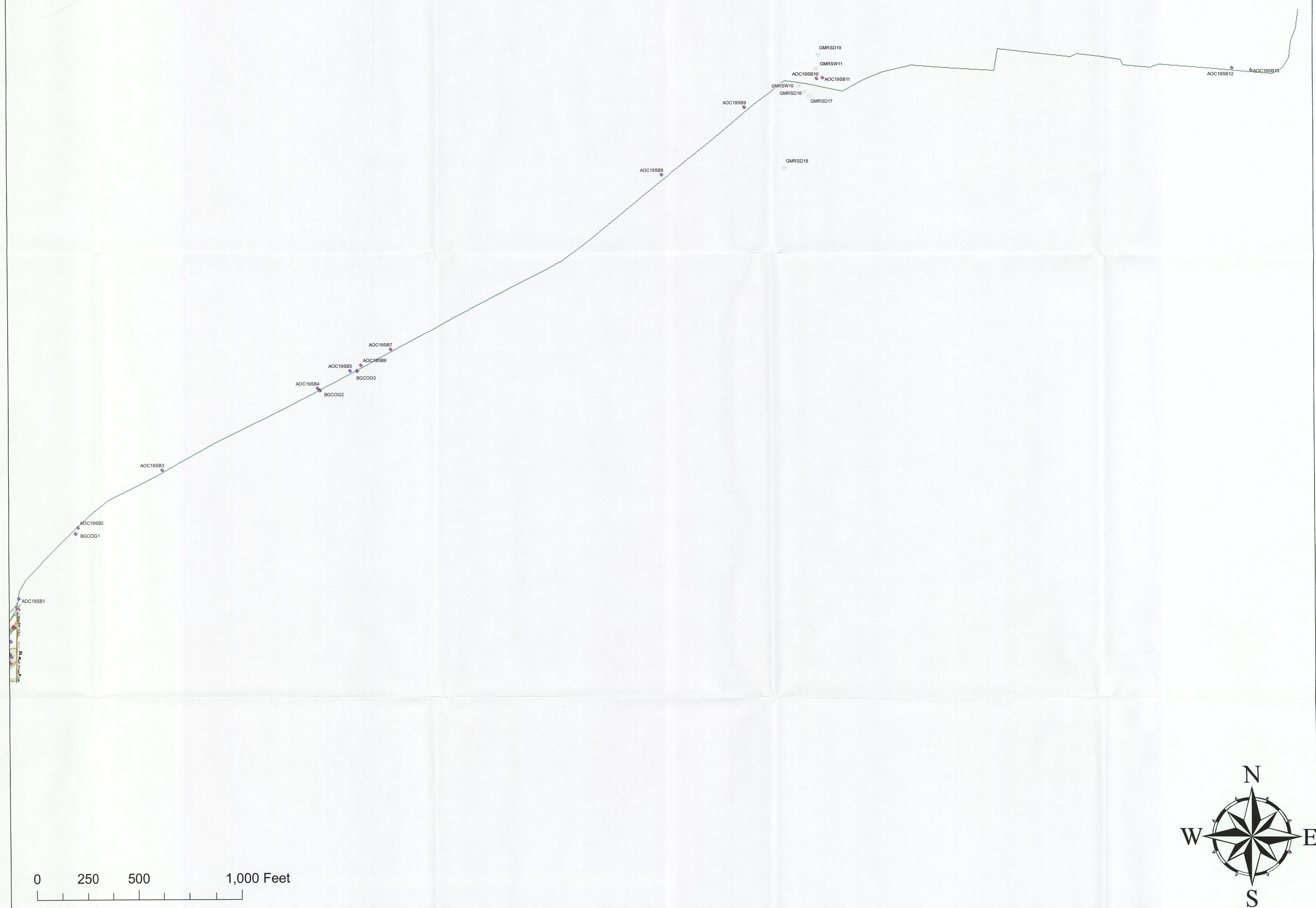
1 inch equals 6,900 feet

Legend

- COG Feature
- COG Meter House
- COG Pipeline



Figure 1.2.2-3 - Site Plan (COG Pipeline)



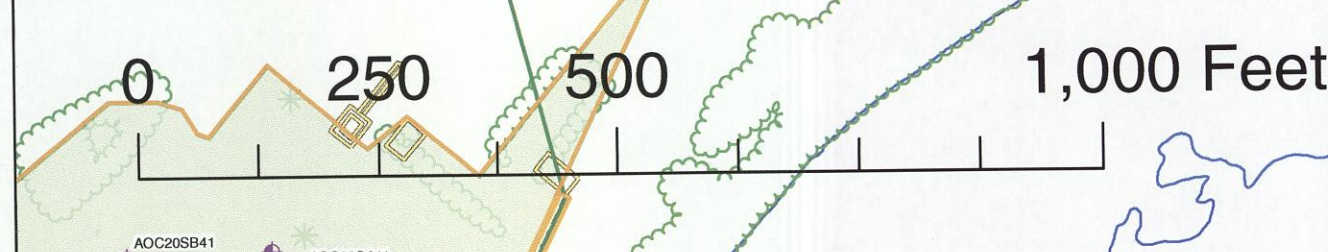
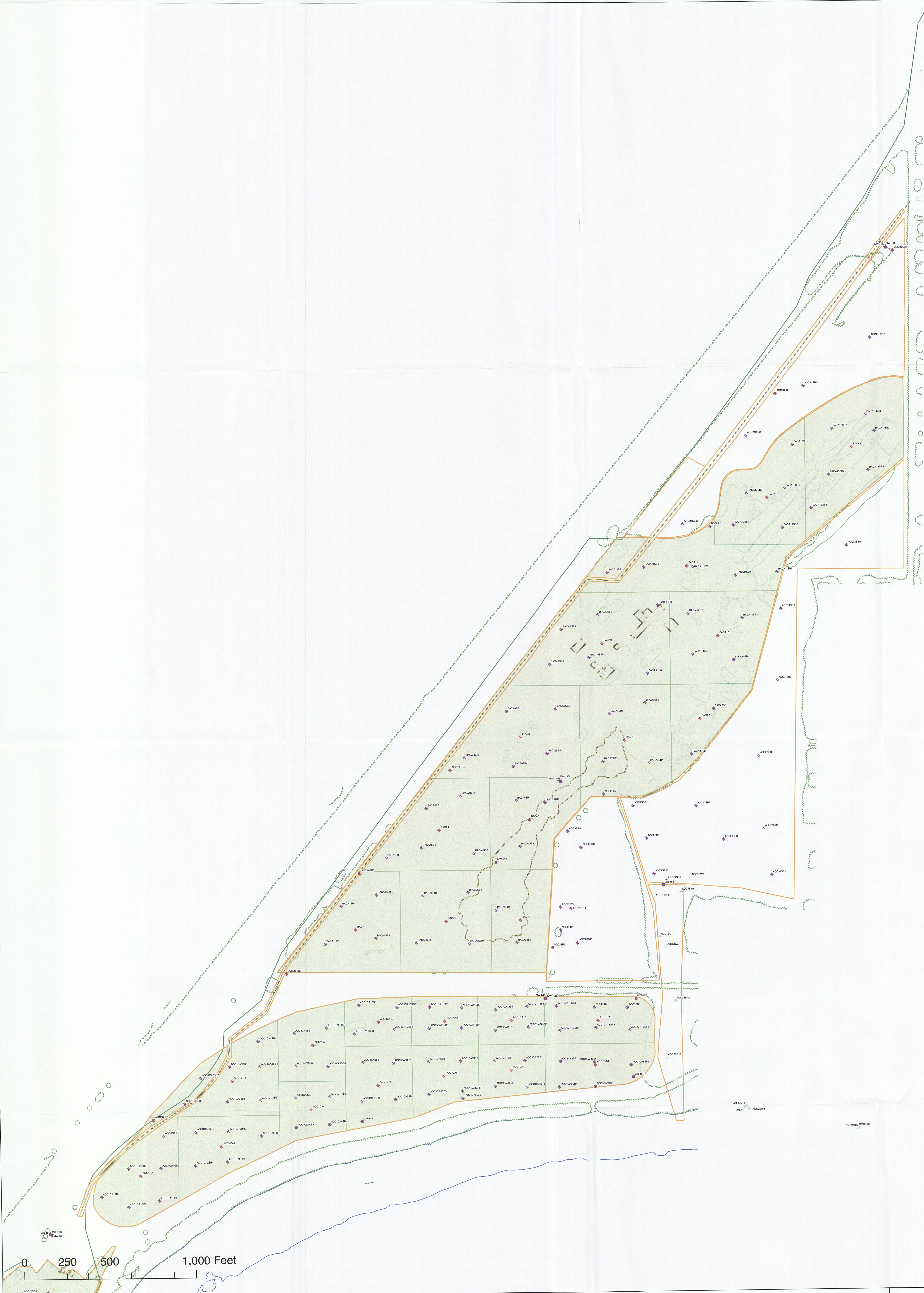
AK Steel COG Pipeline - All Data Locations

- | | |
|------------------------------|-------------------|
| ◆ Composite Area Centroids | Composite Areas |
| ○ Sediment and Surface Water | AOC Boundary |
| ◆ Soil borings | COG Pipeline |
| ○ River Staff Gauge | Historic Features |
| ■ Monitoring Wells | |

ENSR | AECOM

Figure 2.3

Date: 06/19/06
Project: 0076-069-650



AK Steel Northern Parcel - All Data Locations

- Composite Area Centroids
- Sediment and Surface Water
- Soil borings
- Monitoring Wells
- Composite Areas
- AOC Boundary
- COG Pipeline
- Historic Features



Figure 2.2

Date: 07/8/07
Project: MR0506

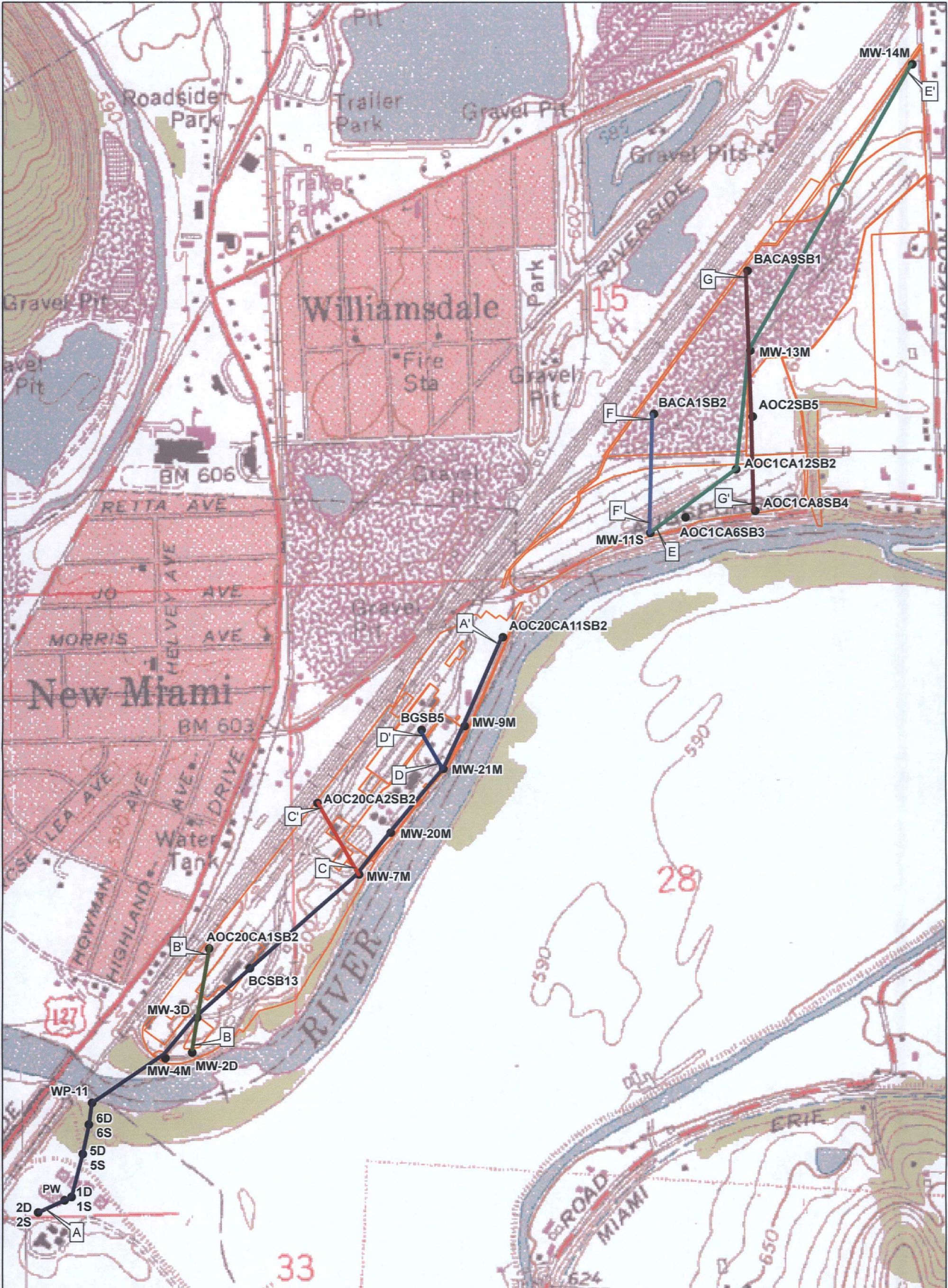


- ### AK Steel Southern Parcel - All Data Locations
- ◆ Composite Area Centroids
 - Sediment and Surface Water
 - ◆ Soil borings
 - Monitoring Wells
 - Composite Areas
 - AOC Boundary
 - COG Pipeline
 - Historic Features

KEMRON
ENVIRONMENTAL SERVICES

Figure 2.1

Date: 07/08/08
Project: MR0506

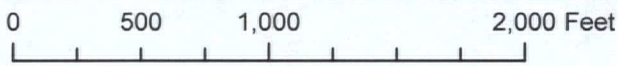


Cross Section Location Map

- | | | |
|--|--|--|
| Cross Sections: | — D | AOC Boundary |
| — A | — E | ● Wells |
| — B | — F | |
| — C | — G | |

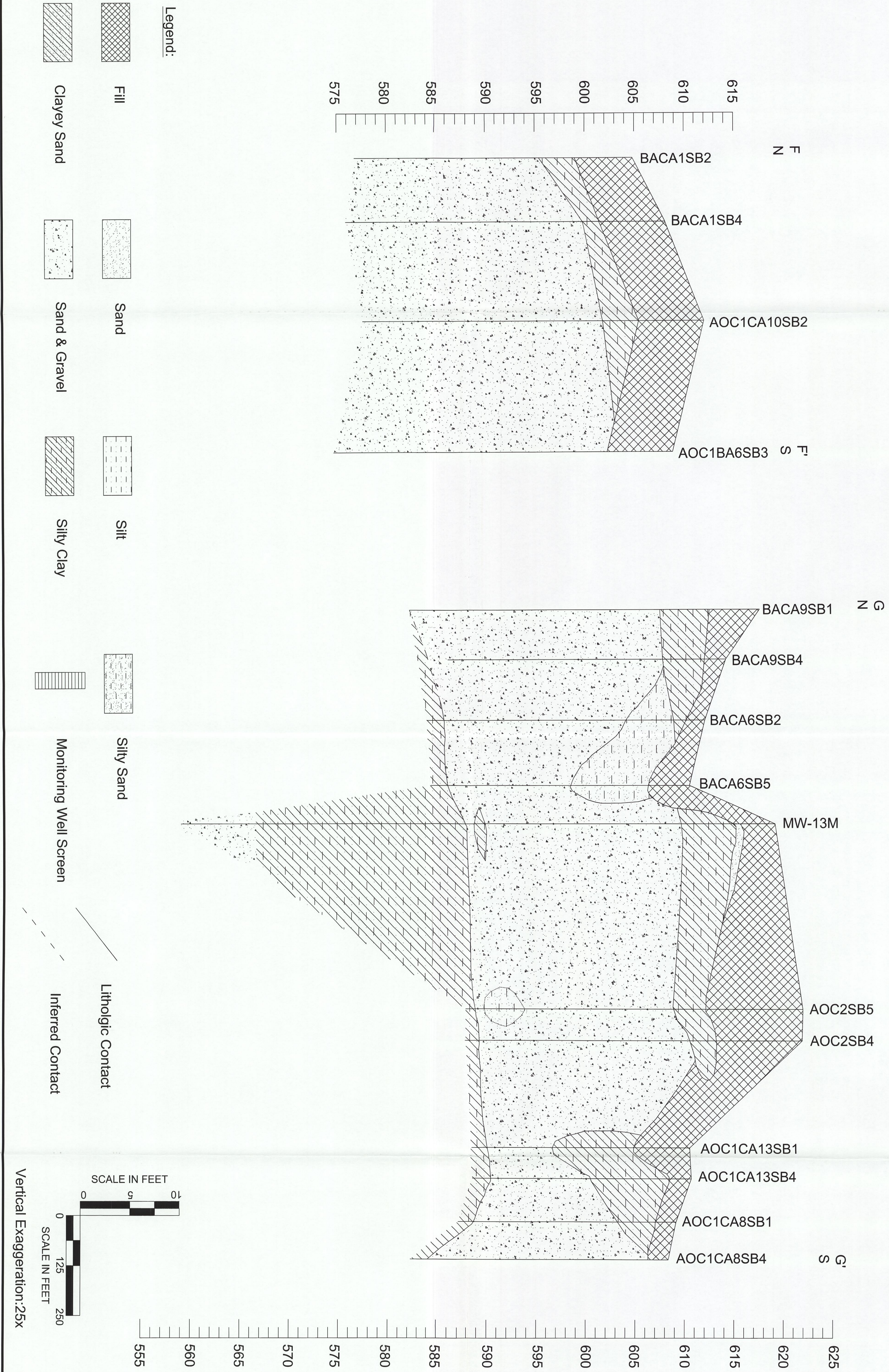


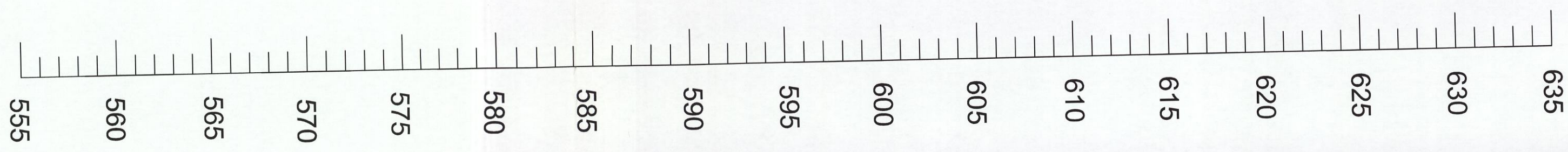
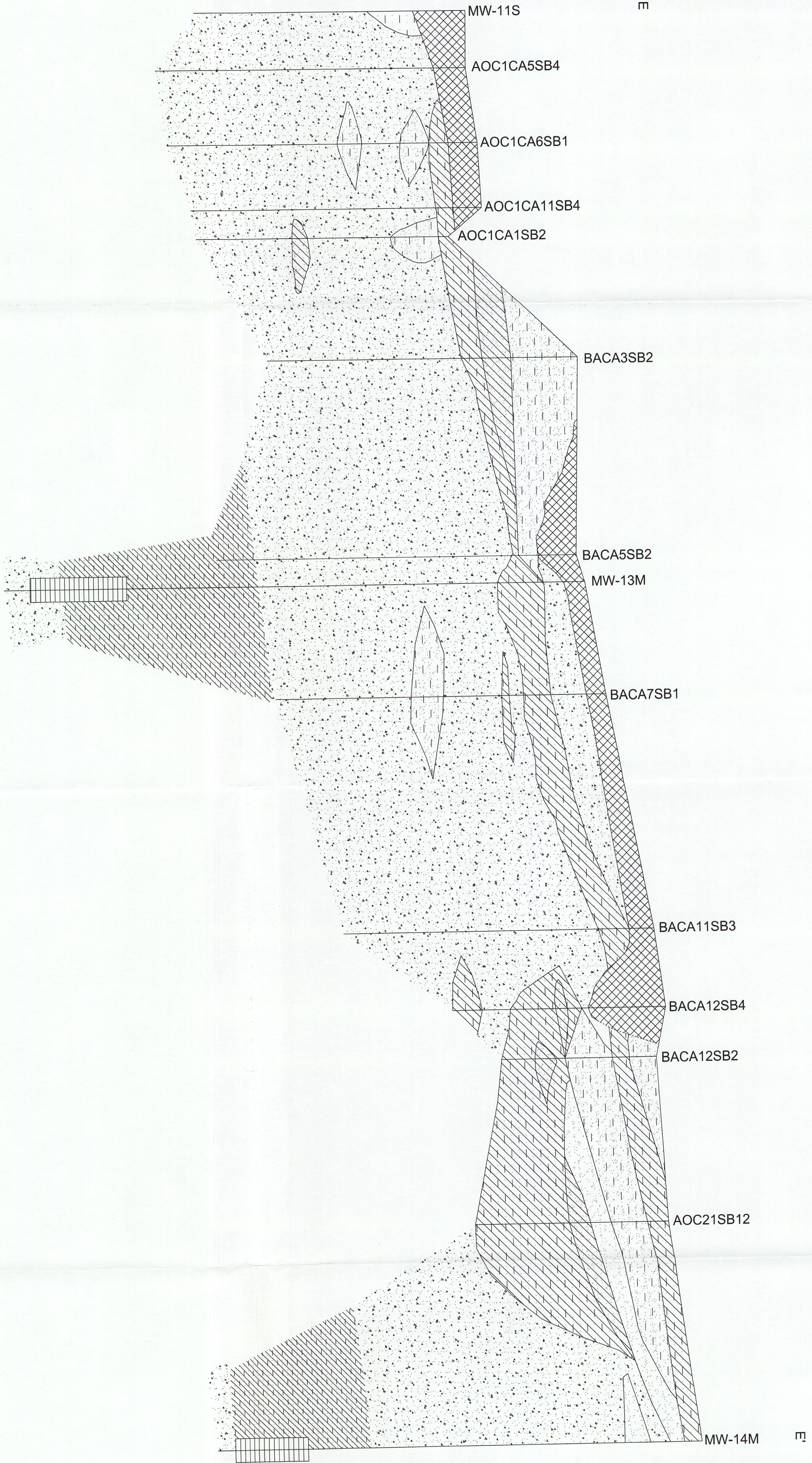
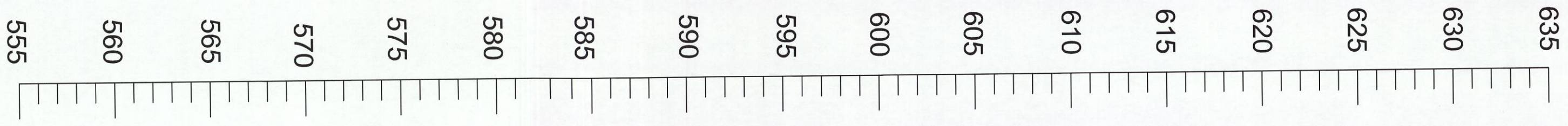
Scale: 1:9,000



Project # MR0507
October 2008

3.4.2-1





Legend:

- | | | | | | | | |
|--|-------------|--|---------------|--|--------------------|--|------------------------|
| | Fill | | Sand | | Silt | | Silty Sand |
| | Clayey Sand | | Sand & Gravel | | Silty Clay | | Monitoring Well Screen |
| | | | | | Lithologic Contact | | Inferred Contact |

SCALE IN FEET
0 5 10

SCALE IN FEET
0 125 250

Vertical Exaggeration: 25x

GEOLIG CROSS SECTION (E - E')
FORMER ARMCO HAMILTON PLANT SITE
AK STEEL CORPORATION
401 AUSPURGER ROAD
NEW MIAMI, OHIO

SCALE: AS SHOWN	DATE: 05-25-06	PROJECT NUMBER: 00076-069
--------------------	-------------------	------------------------------

ENSR CORPORATION
W239 N2890 PEWAUKEE ROAD, UNIT D
PEWAUKEE, WISCONSIN 53072
PHONE: (262) 523-2040
FAX: (262) 523-2059
WEB: HTTP://WWW.ENSR.AECOM.COM

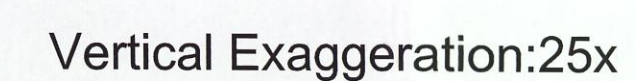
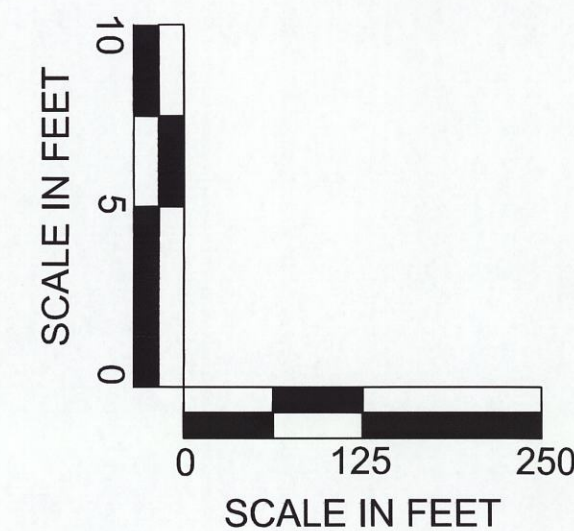
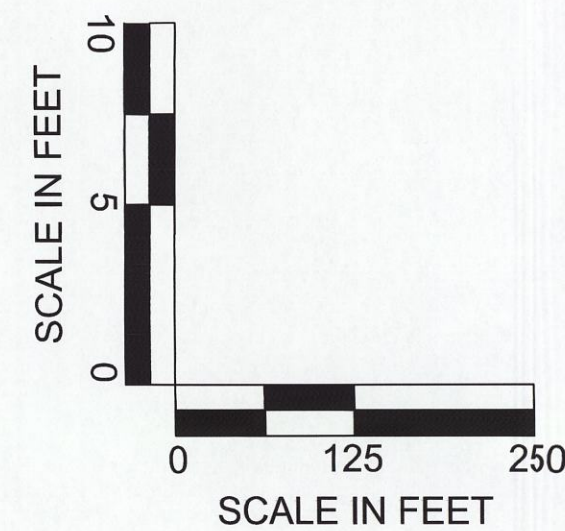
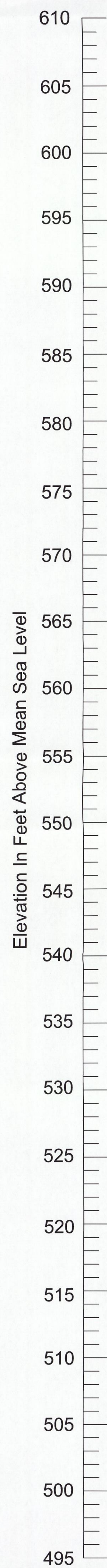
ENSR AECOM

REVISIONS			
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RF			
DRAWN BY:			
HEP			
CHECKED BY:			
RF			
APPROVED BY:			
CB			

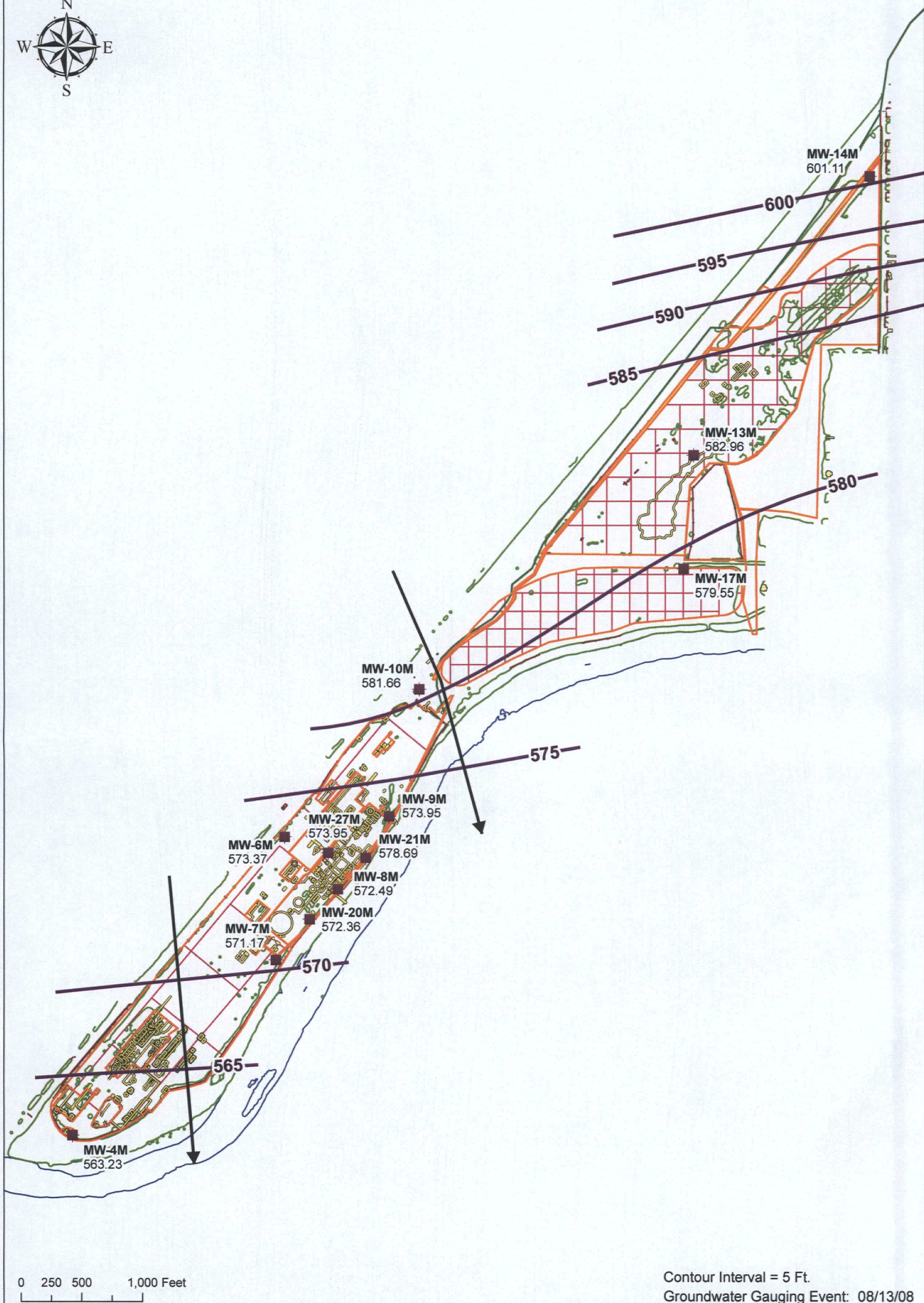
DRAWING NUMBER:

3.4. 2-4

SHEET NUMBER:
X



GEOLOGIC CROSS SECTIONS
(B-B', C-C', AND D-D')
FORMER ARMCO HAMILTON PLANT SITE
AK STEEL CORPORATION
401 AUSPURGER ROAD
NEW MIAMI, OHIO



Map Location



AK Steel Groundwater Potentiometric Surface Map - Intermediate Wells

- Monitoring Wells
- COG Pipeline
- Historic Features
- Groundwater Elevation Contours (Ft.)
- Composite Areas
- AOC Boundary
- Flow Direction

KEMRON
ENVIRONMENTAL SERVICES

Figure 3.7.2-2

Date: 09/30/08
Project: MR0507



0 625 1,250 2,500
Feet
1 inch equals 1,250 feet

Legend

- AOC Boundary
- Historic Features
- Walls/Fences
- Monitoring Well



Figure 3.7.2-3 - Hydraulic Conductivity in Shallow Monitoring Wells



0 625 1,250 2,500 Feet

1 inch equals 1,250 feet

Legend

- AOC Boundary
- Historic Features
- Walls/Fences
- Monitoring Well



Figure 3.7.2-4 - Hydraulic Conductivity in Intermediate and Deep Monitoring Wells

St. Clair Township Butler County, Ohio

Existing Land Use

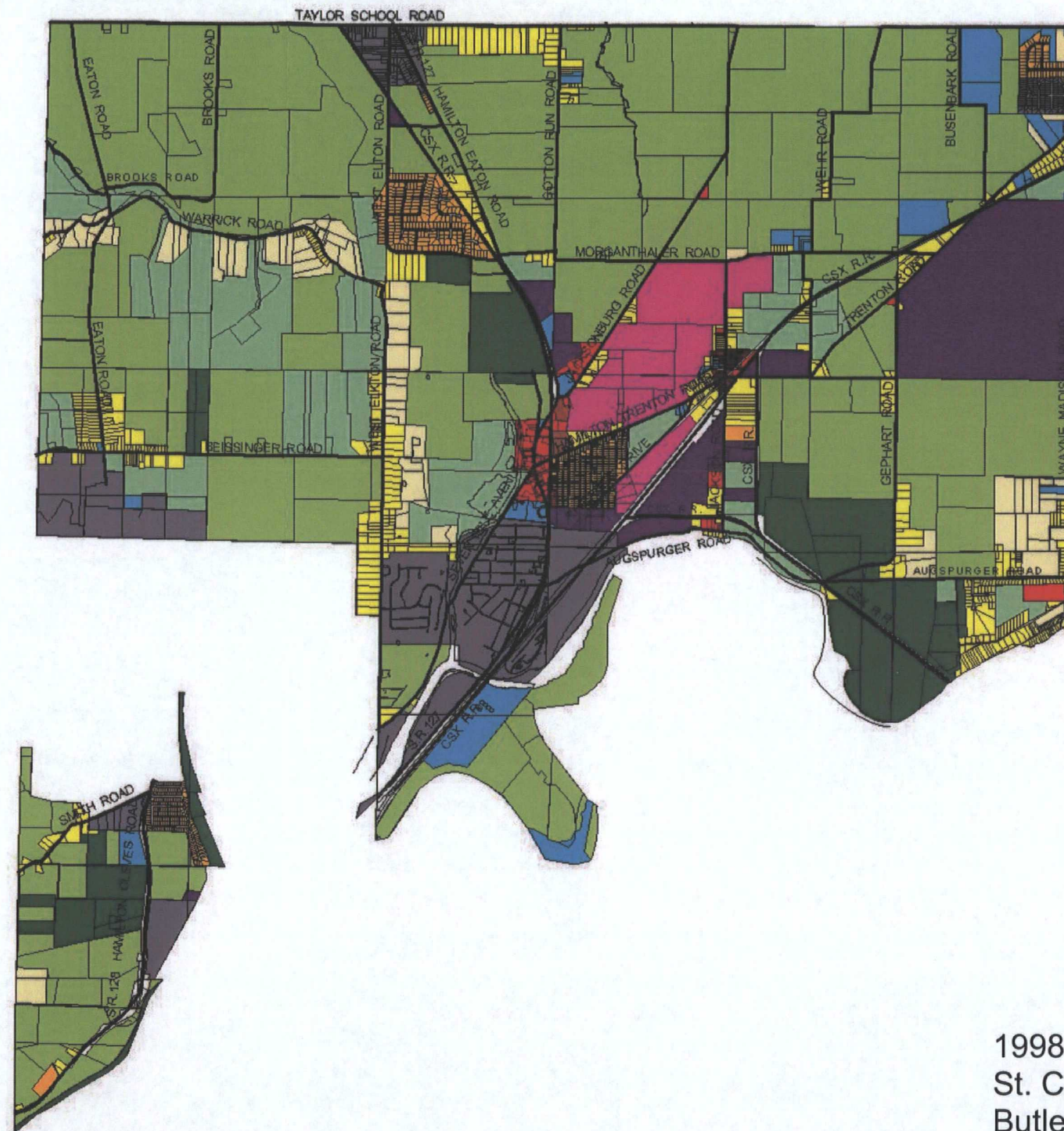
Existing Land Use - 1998

- Agricultural
- Agricultural Estate
- Rural Estate Residential
- Low Density Residential
- Suburban Residential
- High Density Suburban Residential
- Mixed Use
- General Business
- Industrial
- Gravel Extraction
- Public Semi-Public
- Public and Private Recreation
- Incorporated Area

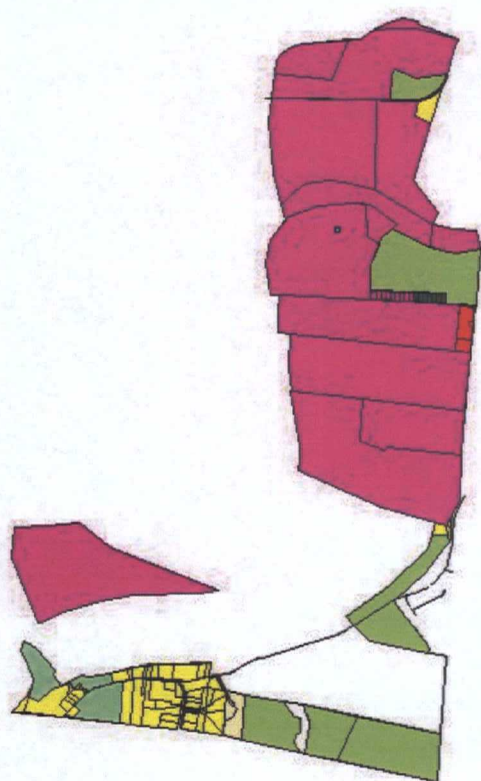
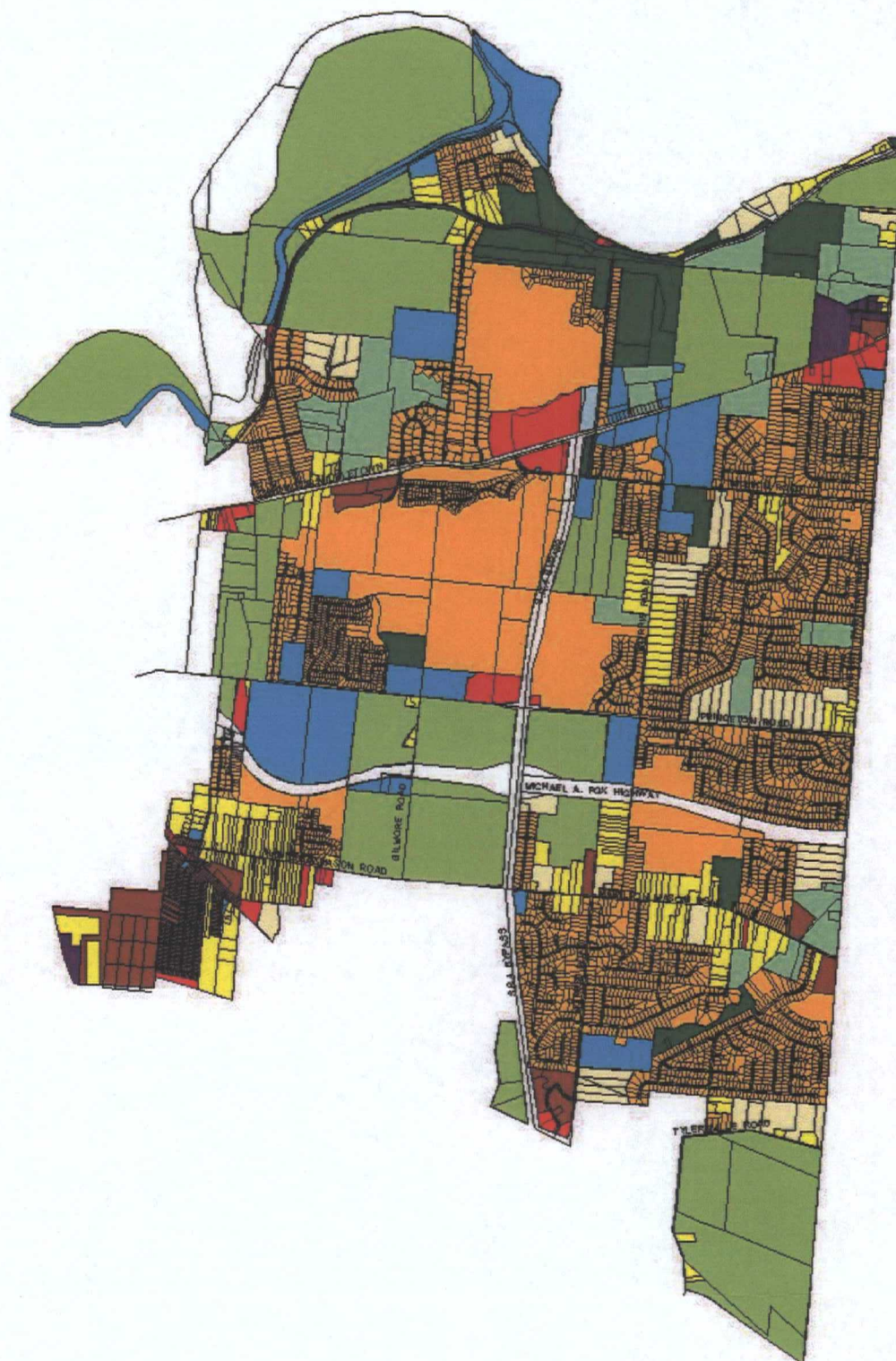
0.2 0 0.2 0.4 0.6 0.8 1 Miles



Butler County Department of Development
Planning Division













1998 Land Use Map
St. Clair Township
Butler County, Ohio
Figure 3.8.1



1998 Land Use Map
Fairfield Township
Butler County, OH
Figure 3.8.2

Fairfield Township Butler County, Ohio

Existing Land Use

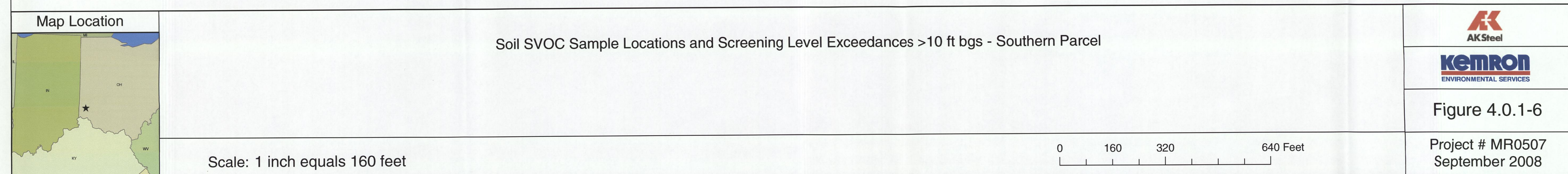
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	Agricultural Estate
	Rural Estate Residential
	Low Density Residential
	Suburban Residential
	High Density Suburban Residential
	Professional Office
	General Business
	Industrial
	Gravel Extraction
	Public / Semi Public
	Public / Private Recreation

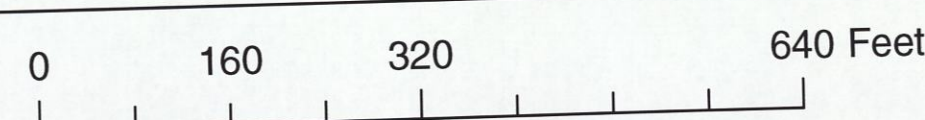
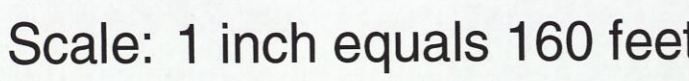
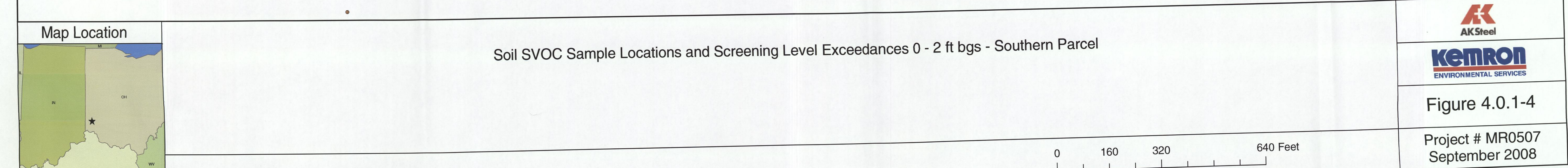
0.2 0 0.2 0.4 0.6 0.8 1 Miles



Butler County Department of Development
Planning Division

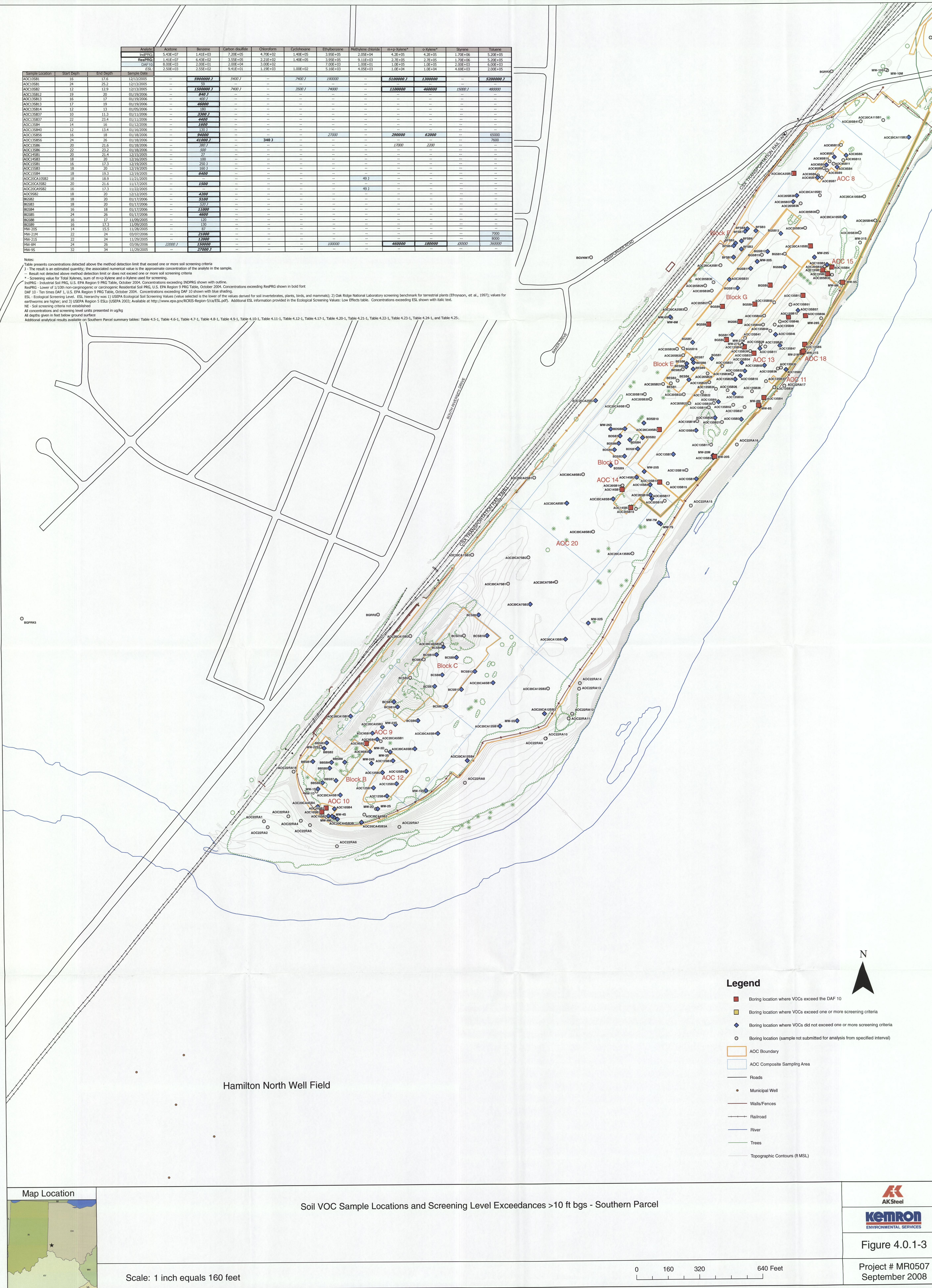
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[illegible]

[illegible]

Analysis	Acetone	Benzene	Carbon disulfide	Chloroform	Cyclohexane	Ethylbenzene	Methylene chloride	m,p-Xylene*	o-Xylene*	Styrene	Toluene
INDPRG	5.43E+07	1.41E+03	7.20E+05	4.70E+02	1.40E+05	3.95E+05	2.05E+04	4.2E+05	4.2E+05	1.70E+06	5.20E+05
ResPRG	1.41E+07	6.43E+02	3.53E+05	2.21E+02	1.40E+05	3.95E+05	3.11E+03	2.7E+05	2.7E+05	1.70E+06	5.20E+05
DAF 10	8.00E+03	2.00E+01	2.00E+04	3.00E+02	1.00E+02	7.00E+03	1.00E+03	1.0E+05	1.0E+05	2.00E+03	6.00E+03
ESL	2.50E+03	2.50E+02	9.41E+01	1.10E+01	1.00E+02	5.10E+03	4.05E+03	1.0E+04	1.0E+04	4.05E+03	2.00E+05
Sample Location	Start Depth	End Depth	Sample Date								
AOC10581	24	17.5	12/13/2005	--	590000 J	5400 J	--	510000 J	130000	--	520000 J
AOC10581	24	25.2	12/13/2005	--	12	--	--	--	--	--	--
AOC10582	12	12.9	12/13/2005	--	150000 J	7400 J	--	3500 J	7400	--	4000
AOC13582	19	20	01/19/2006	--	840 J	--	--	--	--	--	--
AOC13583	16	17	01/19/2006	--	250 J	--	--	--	--	--	--
AOC13583	17	19	01/19/2006	--	4600	--	--	--	--	--	--
AOC13584	12	13	01/09/2006	--	300	--	--	--	--	--	--
AOC13587	10	11.3	01/11/2006	--	3300 J	--	--	--	--	--	--
AOC13587	22	23.4	01/11/2006	--	4400	--	--	--	--	--	--
AOC13584	14	16	01/12/2006	--	1500	--	--	--	--	--	--
AOC13589	12	13.4	01/16/2006	--	130 J	--	--	--	--	--	--
AOC13585	16	18	01/18/2006	--	94000	--	--	27000	29000	62000	65000
AOC13586	24	26	01/18/2006	--	41000 J	340 J	--	--	1200	2200	7600
AOC13586	20	21.6	01/18/2006	--	300 J	--	--	--	--	--	--
AOC14581	20	21.4	12/15/2005	--	27	--	--	--	--	--	--
AOC14583	18	20	12/16/2005	--	100	--	--	--	--	--	--
AOC13581	16	17.3	12/19/2005	--	250 J	--	--	--	--	--	--
AOC13583	18	20	12/19/2005	--	160 J	--	--	--	--	--	--
AOC13584	18	19.3	12/19/2005	--	6400	--	--	--	--	--	--
AOC20CA10582	18	18.9	11/11/2005	--	--	--	--	49 J	--	--	--
AOC20CA582	20	21.6	11/17/2005	--	1500	--	--	--	--	--	--
AOC20CA582	16	17.3	11/22/2005	--	4200	--	--	--	--	--	--
AOC582	18	20	12/12/2005	--	5100	--	--	--	--	--	--
BC582	18	20	01/17/2006	--	320 J	--	--	--	--	--	--
BC583	18	20	01/17/2006	--	320 J	--	--	--	--	--	--
BC584	16	18	01/17/2006	--	11000	--	--	--	--	--	--
BC585	24	26	01/17/2006	--	4000	--	--	--	--	--	--
BC588	16	17	11/09/2005	--	120	--	--	--	--	--	--
BC589	16	17.3	11/09/2005	--	130	--	--	--	--	--	--
MW-205	14	15.5	11/28/2005	--	87	--	--	--	--	--	--
MW-219	22	24	03/07/2006	--	21000	--	--	--	--	--	7000
MW-215	22	24	11/26/2005	--	12000	--	--	--	--	--	8000
MW-8M	24	26	03/06/2006	2000 J	150000	--	100000	--	460000	180000	60000
MW-9S	32	34	11/29/2005	--	27000 J	--	--	--	--	--	360000

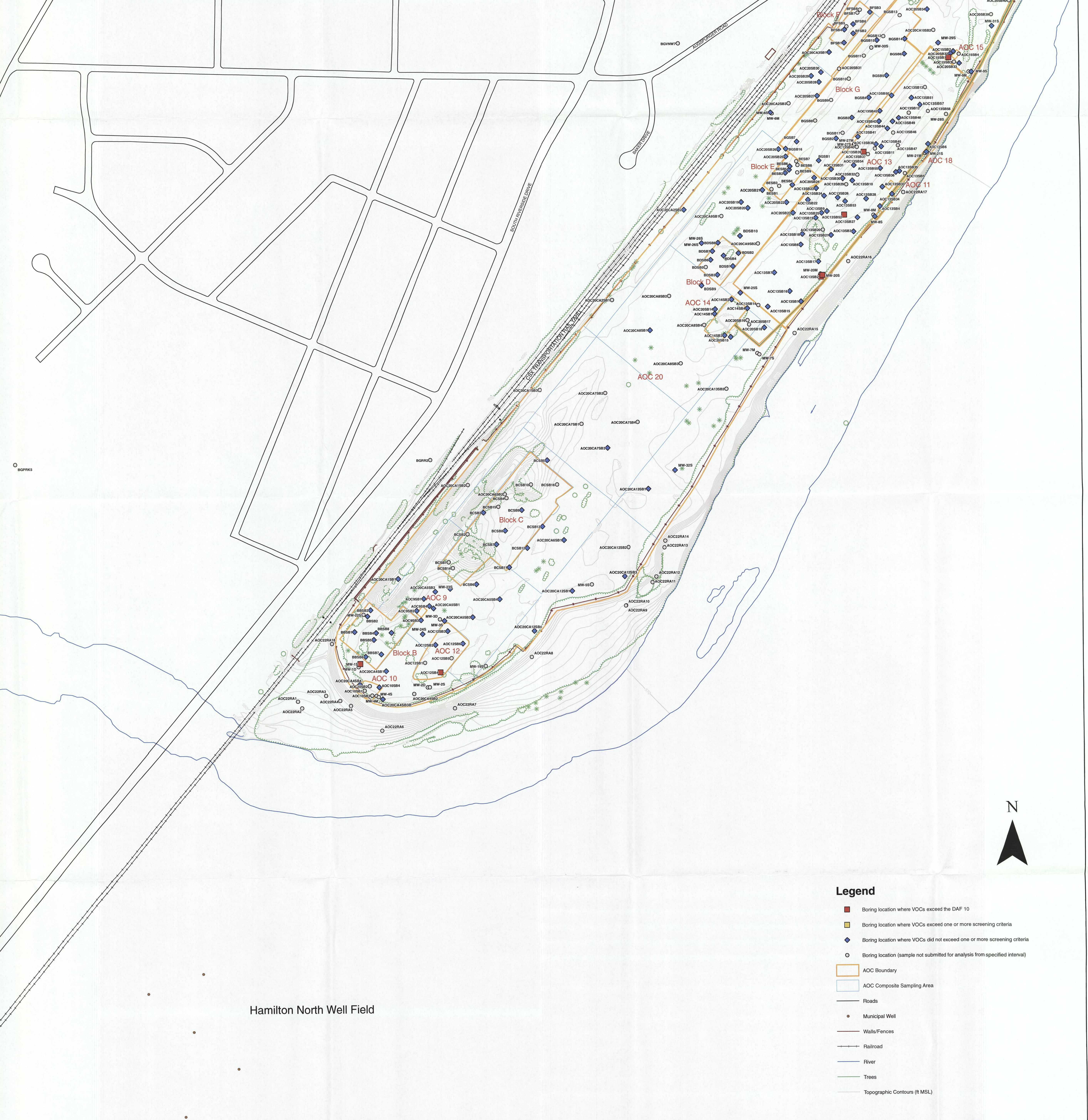
Notes:
Table presents concentrations detected above the method detection limit that exceed one or more soil screening criteria
J - The result is an estimated quantity; the associated numerical value is the approximate concentration of the analyte in the sample.
-- Result not detected above method detection limit or does not exceed one or more soil screening criteria
* - Screening value for Total Xylenes, sum of m,p-Xylene and o-Xylene used for screening.
INDPRG - Industrial Soil PRG, U.S. EPA Region 9 PRG Table, October 2004. Concentrations exceeding INDPRG shown with outline.
ResPRG - Lower of 1)1001 non-carcinogenic or carcinogenic Residential Soil PRG, U.S. EPA Region 9 PRG Table, October 2004. Concentrations exceeding ResPRG shown in bold font.
DAF 10 - Ten times DAF 1, U.S. EPA Region 9 PRG Table, October 2004. Concentrations exceeding DAF 10 shown with blue shading.
ESL - Ecological Screening Level. ESL hierarchy was 1) USEPA Ecological Soil Screening Values (value selected is the lower of the values derived for soil invertebrates, plants, birds, and mammals); 2) Oak Ridge National Laboratory screening benchmark for terrestrial plants (Efronson, et al., 1997); values for earthworms are higher; and 3) USEPA Region 5 ESLs (USEPA 2003). Available at <http://www.epa.gov/ROSD-Region-5/ESL.pdf>. Additional ESL information provided in the Ecological Screening Values: Low Effects table. Concentrations exceeding ESL shown with italic text.
NE - Soil screening criteria not established.
All concentrations and screening level units presented in ug/kg
All depths given in feet below ground surface.
Additional analytical results available on Southern Parcel summary tables: Table 4.5-1, Table 4.6-1, Table 4.7-1, Table 4.8-1, Table 4.9-1, Table 4.10-1, Table 4.11-1, Table 4.12-1, Table 4.17-1, Table 4.20-1, Table 4.21-1, Table 4.22-1, Table 4.23-1, Table 4.24-1, and Table 4.25.



Analyte:	Acetone	Benzene	Carbon Disulfide	Cyclohexane	Ethylbenzene	Methylene chloride	m+p-Xylene*	o-Xylene*	Toluene	Trichloroethene	Xylene
IndPRG:	5.40E+07	1.41E+03	7.20E+05	1.40E+05	3.95E+05	2.05E+04	4.2E+05	4.2E+05	5.20E+05	1.15E+02	4.20E+05
ResPRG:	1.40E+07	6.43E+02	3.60E+05	1.40E+05	3.95E+05	9.11E+03	2.7E+05	2.7E+05	5.20E+05	5.30E+01	2.70E+05
DAF10:	8.00E+03	2.00E+01	2.00E+04	7.00E+03	1.00E+01	1.0E+05	1.0E+05	1.0E+05	6.00E+03	3.00E+01	1.00E+05
ESL:	2.50E+03	2.55E+02	9.40E+01	1.00E+02	5.16E+03	4.05E+03	1.0E+04	1.0E+04	2.00E+05	1.24E+04	1.00E+04

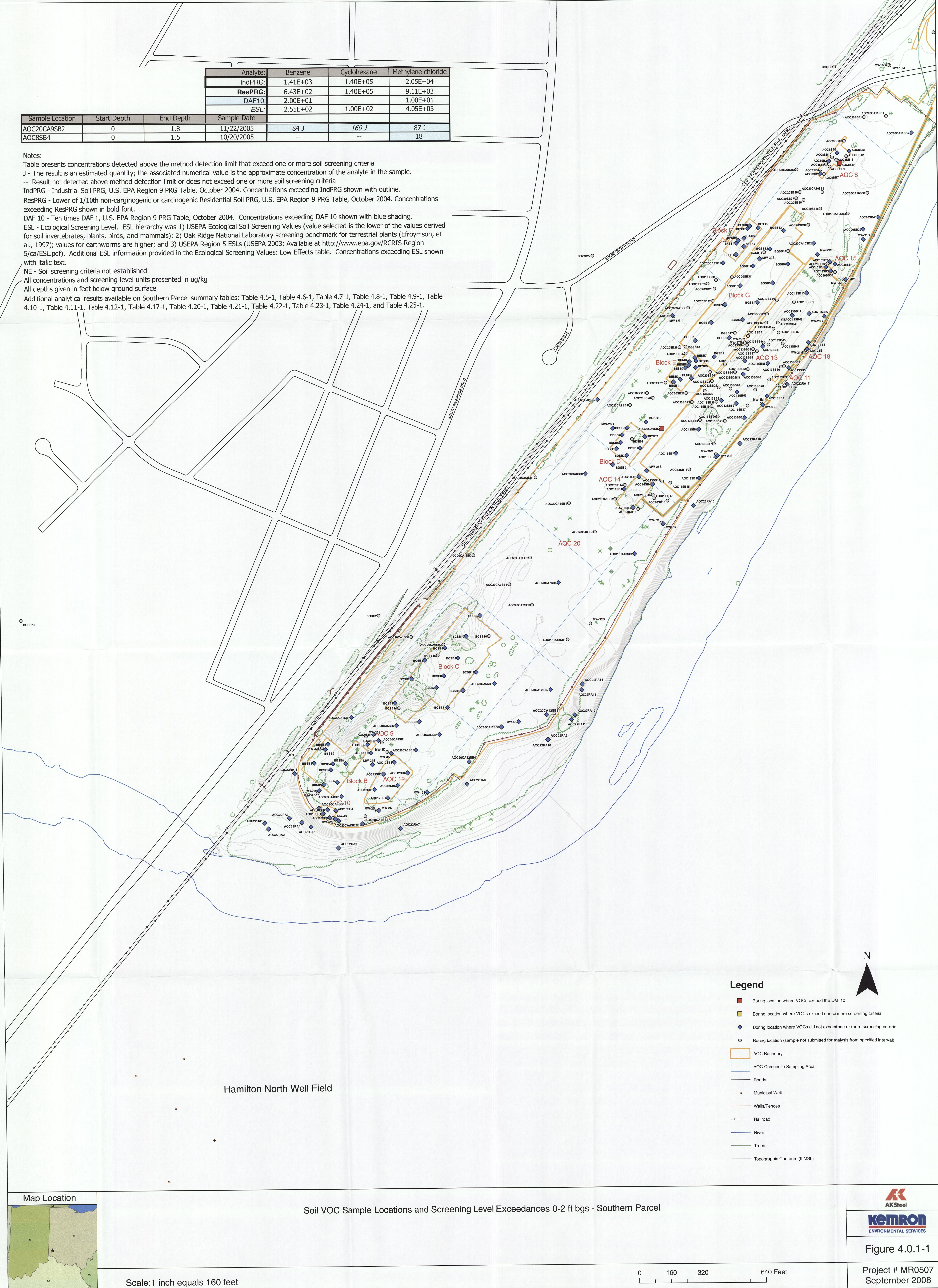
Sample Location	Start Depth	End Depth	Sample Date	Acetone	Benzene	Carbon Disulfide	Cyclohexane	Ethylbenzene	Methylene chloride	m+p-Xylene*	o-Xylene*	Toluene	Trichloroethene	Xylene
AOC125B4	4	5.1	12/13/2005	--	1300	--	<i>160 J</i>	--	87 J	--	--	--	--	--
AOC135B2	4	4.6	01/12/2006	--	150000	--	--	<i>10000 J</i>	18	250000	100000	190000	--	--
AOC135B39	4	6	01/11/2006	5.58 J	1400 J	0.557 J	--	--	--	--	--	--	--	1.65 J
AOC135B52	2	4	01/11/2006	--	--	--	--	--	--	--	--	--	32	1.07 J
AOC155B1	4	5	12/19/2005	--	25	--	--	--	--	--	--	--	--	--
AOC5B7	6	7.6	11/01/2005	--	63 J	0.567 J	--	--	--	--	--	--	47 J	--
MW-15	8	10	11/15/2005	--	27	--	--	--	--	--	--	--	--	--
MW-205	8	9.2	11/28/2005	--	68000 J	5.45 J	--	--	--	84000	35000 J	73000 J	--	0.684 J

Notes:
Table presents concentrations detected above the method detection limit that exceed one or more soil screening criteria
J - The result is an estimated quantity; the associated numerical value is the approximate concentration of the analyte in the sample.
-- Result not detected above method detection limit or does not exceed one or more soil screening criteria
* - Screening value
IndPRG - Industrial Soil PRG, U.S. EPA Region 9 PRG Table, October 2004. Concentrations exceeding IndPRG shown with outline.
ResPRG - Lower of 1/10th non-carcinogenic or carcinogenic Residential Soil PRG, U.S. EPA Region 9 PRG Table, October 2004. Concentrations exceeding ResPRG shown in bold font.
DAF 10 - Ten times DAF 1, U.S. EPA Region 9 PRG Table, October 2004. Concentrations exceeding DAF 10 shown with blue shading.
ESL - Ecological
Screening Level
ESL hierarchy was
NE - Soil screening criteria not established
All concentrations and screening level units presented in ug/kg
All depths given in feet below ground surface
Additional analytical results available on Southern Parcel summary tables: Table 4.5-1, Table 4.6-1, Table 4.7-1, Table 4.8-1, Table 4.9-1, Table 4.10-1, Table 4.11-1, Table 4.12-1, Table 4.17-1, Table 4.20-1, Table 4.21-1, Table 4.22-1, Table 4.23-1, Table 4.24-1, and Table 4.25-1.



Sample Location	Start Depth	End Depth	Sample Date	Analyte:		
				IndPRG:	Benzene	Cyclohexane
				ResPRG:	1.41E+03	1.40E+05
				DAF10:	6.43E+02	1.40E+05
				ESL:	2.00E+01	1.00E+02
AOC20CA9SB2	0	1.8	11/22/2005	84 J	160 J	87 J
AOC8SB4	0	1.5	10/20/2005	--	--	18

Notes:
Table presents concentrations detected above the method detection limit that exceed one or more soil screening criteria
J - The result is an estimated quantity; the associated numerical value is the approximate concentration of the analyte in the sample.
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IndPRG - Industrial Soil PRG, U.S. EPA Region 9 PRG Table, October 2004. Concentrations exceeding IndPRG shown with outline.
ResPRG - Lower of 1/10th non-carcinogenic or carcinogenic Residential Soil PRG, U.S. EPA Region 9 PRG Table, October 2004. Concentrations exceeding ResPRG shown in bold font.
DAF 10 - Ten times DAF 1, U.S. EPA Region 9 PRG Table, October 2004. Concentrations exceeding DAF 10 shown with blue shading.
ESL - Ecological Screening Level. ESL hierarchy was 1) USEPA Ecological Soil Screening Values (value selected is the lower of the values derived for soil invertebrates, plants, birds, and mammals); 2) Oak Ridge National Laboratory screening benchmark for terrestrial plants (Efroymsen, et al., 1997); values for earthworms are higher; and 3) USEPA Region 5 ESLs (USEPA 2003; Available at <http://www.epa.gov/RCRIS-Region-5/ca/ESL.pdf>). Additional ESL information provided in the Ecological Screening Values: Low Effects table. Concentrations exceeding ESL shown with italic text.
NE - Soil screening criteria not established
All concentrations and screening level units presented in ug/kg
All depths given in feet below ground surface
Additional analytical results available on Southern Parcel summary tables: Table 4.5-1, Table 4.6-1, Table 4.7-1, Table 4.8-1, Table 4.9-1, Table 4.10-1, Table 4.11-1, Table 4.12-1, Table 4.17-1, Table 4.20-1, Table 4.21-1, Table 4.22-1, Table 4.23-1, Table 4.24-1, and Table 4.25-1.



Legend

Boring location where VOCs exceed the DAF 10

Boring location where VOCs exceed one or more screening criteria

Boring location where VOCs did not exceed one or more screening criteria

Boring location (sample not submitted for analysis from specified interval)

AOC Boundary

AOC Composite Sampling Area

Roads

Municipal Well

Walls/Fences

Railroad

River

Trees

Topographic Contours (ft MSL)

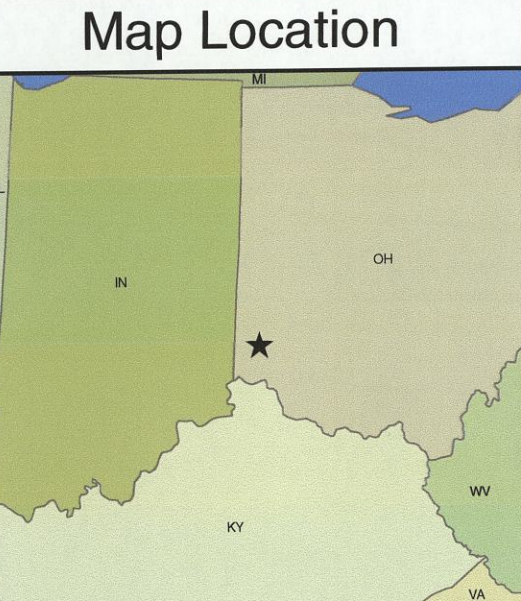
AK Steel

KEMRON

ENVIRONMENTAL SERVICES

Figure 4.0.1-1

Project # MR0507
September 2008



Soil VOC Sample Locations and Screening Level Exceedances 0-2 ft bgs - Southern Parcel

Scale:1 inch equals 160 feet